(Adopted December 4, 1987)(Amended April 1, 1988)(Amended July 14, 1995)
(PAR May 2, 2008)

PROPOSED AMENDED RULE 1149. STORAGE TANK AND PIPELINE CLEANING AND DEGASSING

(a) Purpose and Applicability

The purpose of this rule is to reduce Volatile Organic Compounds (VOCs) and toxics emissions from roof landings, cleaning, maintenance, testing, repair and removal of storage tanks and pipelines. This rule applies to the cleaning and degassing of a pipeline opened to atmosphere outside the boundaries of a facility, stationary tank, reservoir, or other container, storing or last used to store ~~Volatile Organic Compounds~~VOCs.

(b) Definitions

(1) CLEANING is the process of washing or rinsing a stationary tank, reservoir, pipelines, or other container or removing vapor, sludge, or rinsing liquid from a stationary tank, reservoir, or other container.

(2) DEGASSING is the process of removing organic gases from a stationary tank, reservoir, pipelines, or other container.

(3) DRAIN-DRY BREAKOUT TANK is an above ground storage tank designed such that the floating roof rests on support legs no higher than one foot along the tank shell with a bottom sloped to a sump or sumps such that no product or sludge remains on the tank bottom and walls after emptying except clingage and is primarily used to receive product from pipelines and to distribute product back into pipelines.

(~~3~~4) EXEMPT COMPOUNDS are defined in Rule 102 -- Definition ~~Of~~of Terms.

(5) FACILITY means any source or group of sources or other air contaminant-emitting activities that are located on one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right of way, and are owned by the same person (or by persons under common control).

(~~4~~6) LIQUID BALANCING is a process in which an organic liquid having a Reid vapor pressure subject to this rule is replaced in ~~the~~ a floating roof storage tank by an organic liquid with a Reid vapor pressure that is not

subject to this rule without landing the floating roof on its internal supports.

(~~5~~7) LIQUID LEAK is the dripping of liquid ~~volatile organic compounds~~VOC at the rate of more than three drops per minute.

(8) NATURAL GAS is a mixture of hydrocarbons, with at least 80 percent methane by volume and less than 10 percent by weight VOC, determined according to the test method specified in paragraph (d)(5).

~~(6) UNDERGROUND STORAGE TANK means any one or combination of tanks, including pipes connected thereto, which is used for the storage of organic liquid, which is more than 50% by tank volume beneath the surface of the ground.~~

(9) REID VAPOR PRESSURE (RVP) is the vapor pressure of a product determined in a volume of air four times greater than the liquid volume at 100° F.

(~~7~~10) VAPOR LEAK is the detection of gaseous volatile organic compounds in excess of ~~10,000~~ 5,000 ppmv, measured as methane. ~~Measurements of gaseous volatile organic compound concentrations shall be conducted according to EPA Method 21, using an appropriate analyzer calibrated with methane at a distance of 1 cm (0.4 inch) or less from the source.~~

(11) VAPOR TIGHT CONDITION is a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 parts per million (ppm), measured as methane, above background, measured using EPA Reference Method 21.

(~~8~~12) VOLATILE ORGANIC COMPOUND (VOC) is ~~any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds~~as defined in Rule 102.

(c) Requirements

(1) ~~Above-ground stationary tank~~

~~Where a~~A stationary tank, reservoir, or container of equal or greater capacity and containing or last containing any organic liquid with a vapor pressure equal or greater than in Table 1 ~~shall be opened to the atmosphere, a person shall not allow cleaning or degassing of any above-ground stationary tank, reservoir, or other container of more than 150,000 liters (39,630 gallons) capacity containing any organic liquid having a Reid~~

~~vapor pressure of more than 134 mm Hg (2.6 psi) or between 75,000 liters (19,815 gallons) and 150,000 liters (39,630 gallons) capacity storing any organic liquid having Reid vapor pressure of 202 mm Hg (3.9 psi) or~~ shall not be opened to the atmosphere unless the emissions are controlled by one of the following:

(A) Liquid balancing; or ~~which results in a vapor pressure less than that specified in subparagraph (c)(1) above.~~

(B) ~~Or o~~Other control techniques such that the gaseous VOC concentration within the tank, reservoir or other container is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased.

Table 1
Capacity and Vapor Pressure Rule Applicability

Capacity gallons (liters)	Vapor Pressure (RVP)
500 (1,893)	3.9 psia
26,420 (100,000)	2.6 psia
100,000 (378,500)	0.5 psia

~~Negative pressure displacement and subsequent incineration in a manner approved by the Executive Officer or designee.~~

~~(C) A refrigerated condenser which reduces the vapor temperature to -100°F or lower, and capable of handling the displaced vapors.~~

~~(D) Any other control method or control equipment that has been approved by the Executive Officer or designee to be at least 90 percent efficient in reducing VOC emissions.~~

(2) ~~Underground storage tank~~

The roof of a floating storage tank containing or last containing a VOC liquid with a Reid vapor pressure greater than 25 mm Hg (0.5 psi) may not rest upon its support legs after it has been emptied unless emissions are controlled by one of the following:

(A) The vapor space created is vented to a control device approved by the Executive Officer; or

(B) The gaseous VOC concentration within the tank, reservoir or other container is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased.

(3) In lieu of meeting the requirements of paragraph (c)(2), drain-dry breakout tanks shall be maintained in a vapor tight condition outside the tank shell while the roof is resting upon its support legs and shall be monitored monthly. Records shall be maintained pursuant to paragraph (c)(11). Owners or operators of facilities requiring tank modifications to meet the drain-dry breakout tank definition and utilize this compliance option shall make the modifications according to the following schedule:

(A) At least 1/4 of the tanks subject to this provision by August 1, 2009;

(B) At least 1/2 of the tanks subject to this provision by August 1, 2010;

(C) At least 3/4 of the tanks subject to this provision by August 1, 2011; and

(D) All tanks subject to this provision by August 1, 2012.

By August 1, 2008, an owner or operator shall submit to the District a compliance plan identifying the applicable tanks and the schedule for modification completion. Applicable tanks shall be maintained in a vapor tight condition outside the tank shell while resting upon its support legs and monitored monthly.~~A person shall not allow cleaning or degassing of any underground storage tank with a capacity greater than 500 gallons storing or last used to store liquids with a Reid vapor pressure greater than 202 mm Hg (3.9 psi) unless the VOC emissions are controlled by a device that is has been approved by the Executive Officer or designee to be at least 90 percent efficient. For the purposes of this rule, any underground storage tank that is removed from the ground and is to be later cleaned above ground, shall still be considered an underground tank. Any subsequent tank cleaning or degassing, even though the tank is above ground, shall meet the applicable requirements of this rule for underground storage tanks.~~

(4) Effective June 1, 2008, pipelines with a diameter of 6 inches or greater containing or last containing a VOC liquid with a Reid vapor pressure

greater than 134 mm Hg (2.6 psi) shall not be opened to the atmosphere unless emissions are controlled by one of the following:

(A) The vapor space created is vented to a control device approved by the Executive Officer; or

(B) The gaseous VOC concentration within the pipeline is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after degassing operations have ceased; or

(C) The gaseous VOC concentration outside the pipeline is less than 5,000 ppmv, measured as methane.

The process of removing liquid from pipelines shall be continuous and the liquid shall be immediately transferred into a container that meets the requirements of paragraph (c)(9). During the liquid removal process, the gaseous VOC concentration standard stated in paragraph (c)(4) will not apply.

~~(3)~~(5) Equipment used in the cleaning or degassing process shall be free of liquid and vapor leaks. This includes, but is not limited to: the degassing equipment, vacuum truck, pumps, hoses, and connections.

(6) Effective June 1, 2008, vacuum trucks used to remove liquid, sludge or vapors from tanks or pipelines subject to this rule shall not exhaust vapors to the atmosphere greater than 500 ppmv, measured as methane.

~~(4)~~(7) ~~Except for emergency cases, the~~ The District shall be notified of the intent to degas any tank or pipeline subject to the rule. Initial notifications shall be submitted in ~~operator shall notify the Executive Officer or designee by telephone~~ a written format approved by the Executive Officer ~~during normal business hours and receive authorization~~ at least ~~one (1) day~~two (2) hours and no more than two (2) ~~ten (10)~~ days prior to the start of the ~~emptying~~ degassing operation ~~for the purpose of cleaning or degassing any storage tank subject to this rule.~~ The initial notification shall include:

(A) Start date and time;

(B) Tank or pipeline owner, address, tank location and applicable tank permit numbers;

(C) Degassing operator’s name, contact person, telephone number and applicable control equipment permit numbers; and

(D) Tank or pipeline capacity, volume of space degassed and materials stored.

A follow-up notification, using a form approved by the Executive Officer which is fully completed, including associated notification fees, as set forth in Rule 301 – Permitting and Associated Fees, must be submitted to the District postmarked, received or delivered no later than three business days following the degassing activity.

~~(5) Degassing of any container subject to the provisions of subparagraph (c)(1) and (c)(2) of this rule shall be done in the following manner:~~

~~(A) Air Displacement – The displaced gas shall remain vented to the refrigerated vapor condenser, or equivalent control system, for a length of time determined by the following relationship:~~

~~$t = \frac{2.3\ V}{Q}$~~

~~Where:~~

~~t = time (hrs)~~

~~V = volume of the gas to be freed (ft^3)~~

~~Q = flow rate through condenser (ft^3/hr); or~~

~~(B) Liquid Displacement – The displaced gas shall remain vented to the control equipment until 90 percent of the vapor volume in the tank is displaced by an equal volume of the liquid into the control equipment.~~

~~(6) When refrigeration is used, the equipment operator shall monitor the condenser temperature and the flow rate into the condenser. Any interruption of service of the equipment must be documented.~~

(~~7~~8) The VOC concentration in the exhaust stream of any control device shall be less than 500 ppmv, measured as methane. When carbon adsorption is used for degassing:

(A) An organic vapor monitor/analyzer approved by the Executive Officer or designee shall be installed and operated at any exit of the carbon adsorption device to determine the concentration of hydrocarbon discharged to the atmosphere.

(B) An ~~person~~ owner or operator shall not regenerate any spent carbon from a carbon adsorber unless the regeneration is conducted using equipment operating under a valid permit to operate issued by the Executive Officer or designee.

~~(8) The information obtained in subparagraphs (c)(4), (c)(5), (c)(6), and (c)(7)(A) of the rule shall be recorded and kept for two (2) years and shall be made available to the Executive Officer or designee upon request.~~

(9) Any ~~condensed~~ liquids or sludge removed from the tank or pipeline prior to the tank meeting the requirements of paragraphs (c)(1), (c)(3) or (c)(4), shall be handled or disposed of in closed containers that are free of liquid and vapor leaks or in a manner previously approved by the Executive Officer ~~or designee~~.

(10) A person engaged in the off-site cleaning or degassing of stationary storage tanks shall complete the cleaning and degassing operations in accordance with the requirements of ~~subparagraph~~ subdivision (c)~~(2)~~ within 14 days of receiving the tanks.

(11) Records shall be maintained by the owner and operator for two (2) years, or five (5) years if the facility is a Title V facility, and be made available to the Executive Officer or designee upon request. The records shall include, but are not limited to:

(A) All notification requirements under paragraph (c)(7);

(~~A~~B) Tank or pipeline owner, ~~and~~ address and applicable tank permit numbers;

(~~B~~C) Tank or pipeline degassing operator's name, ~~permit number,~~ contact person, ~~and~~ telephone number and applicable control equipment permit numbers;

(~~C~~D) Tank or pipeline capacity, volume of vapor space degassed and materials stored;

(~~D~~E) The flow rate and gaseous VOC concentration vented to the degassing equipment, if applicable;

(~~E~~F) The gaseous VOC concentration ~~control efficiency~~ of the degassing equipment exhaust, if applicable; ~~and~~

(~~F~~G) The total amount of VOC processed in the degassing equipment, if applicable; and

(H) All readings measured according to EPA Reference Test Method 21, as specified in subdivision (d).

(d) Test Methods

For the purpose of this rule, the following test methods shall be used.

(1) Measurement of gaseous VOC concentrations shall be conducted according to EPA Reference Method 21 using an appropriate analyzer calibrated with methane at a distance of 1 cm (0.4 inch) or less from the source. For pipelines, the probe inlet shall be located one foot away from the opening in the pipeline. When determining compliance with subparagraphs (c)(1)(B) or (c)(2)(B), the probe inlet of the monitoring instrument shall be located no more than 1 foot above the bottom of the tank or no more than 1 foot above the surface of the sludge material on the bottom of the tank. For upright, cylindrical aboveground tanks, the probe inlet shall be located at least 2 feet away from the inner surface of the tank wall. ~~Control equipment efficiency in reducing VOC emissions is determined by USEPA Test Method 25, 25A, or SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as Carbon) as applicable.~~

(2) Reid vapor pressure is determined by ASTM D 323-90.

(3) The VOC content of gases shall be determined according to ASTM Method D 1945.

(e) Voluntary Greenhouse Gas Reduction Quantification Protocol

The purpose of this subdivision is to provide a quantification protocol for any person who voluntarily elects to reduce Geenhouse gas emissions by controlling methane emissions from natural gas pipelines. Participation in this carbon-reduction activity is strictly voluntary. This subdivision provides a mechanism through which excess reductions may be quantified and applied towards any programs that would allow the use of such excess reductions. The amount of carbon reductions shall be calculated according to the following formulas:

$$CR = [GWP \times (VR_{pre} - (V_{fuel} + VR_{post})) \times F \times (MW/(MVC)) \times t]$$

where,

CR = Carbon Reductions, (pounds)

GWP = the carbon dioxide equivalent (100 years) global warming potential of methane

VR_{pre} = the volumetric flowrate of natural gas released at standard conditions, standard cubic feet per minute (scfm), if no controls applied

V_{fuel} = the volumetric flowrate, in scfm, of any supplement fuel used in a combustion process

VR_{post} = the actual volumetric flowrate of natural gas released at standard conditions (scfm) after controls applied

F = the molar fraction of methane gas in the vent gas stream

MW = the molecular weight of methane (16 lb/lbmole)

MVC = the molar volume conversion (379 scf/lbmole)

t = the time duration of the venting event in minutes

If a combustion process is used to control methane emissions the carbon-reduction will be reduced by four percent to reflect carbon dioxide created.

(~~e~~f) Exemptions

(1) ~~The provisions of subparagraph (c)(4) shall not apply to emergency tank removals or repairs performed in an emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer. Whenever possible, the Executive Officer or designee shall be notified prior to commencing, and in no event in writing no later than 48 hours following, any emergency tank cleaning or degassing. Written notification shall include written emergency declaration from the authorized officer.~~ The provisions of this rule shall not apply to the degassing of less than 100 feet of a pipeline.

(2) ~~The provisions of this rule shall not apply to underground tanks specified as exemptions in the Health and Safety Code Section 25281.~~The provisions of this rule shall not apply to the degassing of less than 0.25 miles of a pipeline that contained or previously contained any organic liquid having a Reid vapor pressure less than 202 mm Hg (3.9 psi).

(3) The provisions of subdivision (c) shall not apply to natural gas pipelines.

(4) The provisions of subdivision (c) shall not apply while connecting or disconnecting degassing equipment, sampling emissions, purging inert gas from pipelines when reintroducing product or while connecting or disconnecting pipelines and associated control techniques or control equipment.